Evaporation and Microphysical Structure within the North American Monsoon and Eastern Pacific

NA07OAR4310270, Second year progress report, 4/26/2009

Report Figures:

Figure 1 shows the results of the ceilometer calibration exercise:

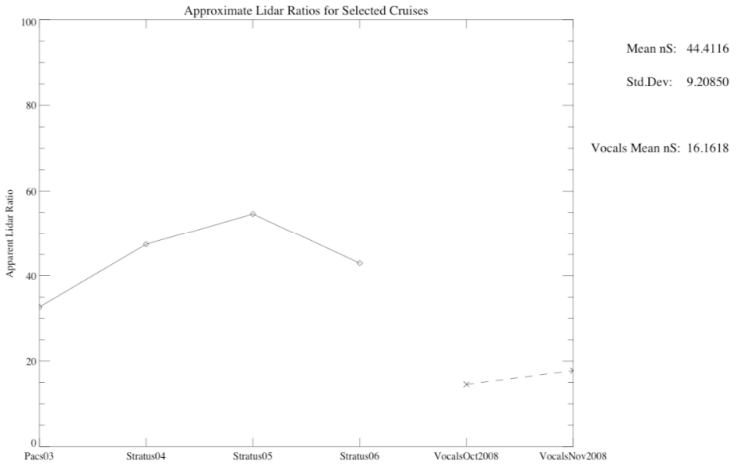
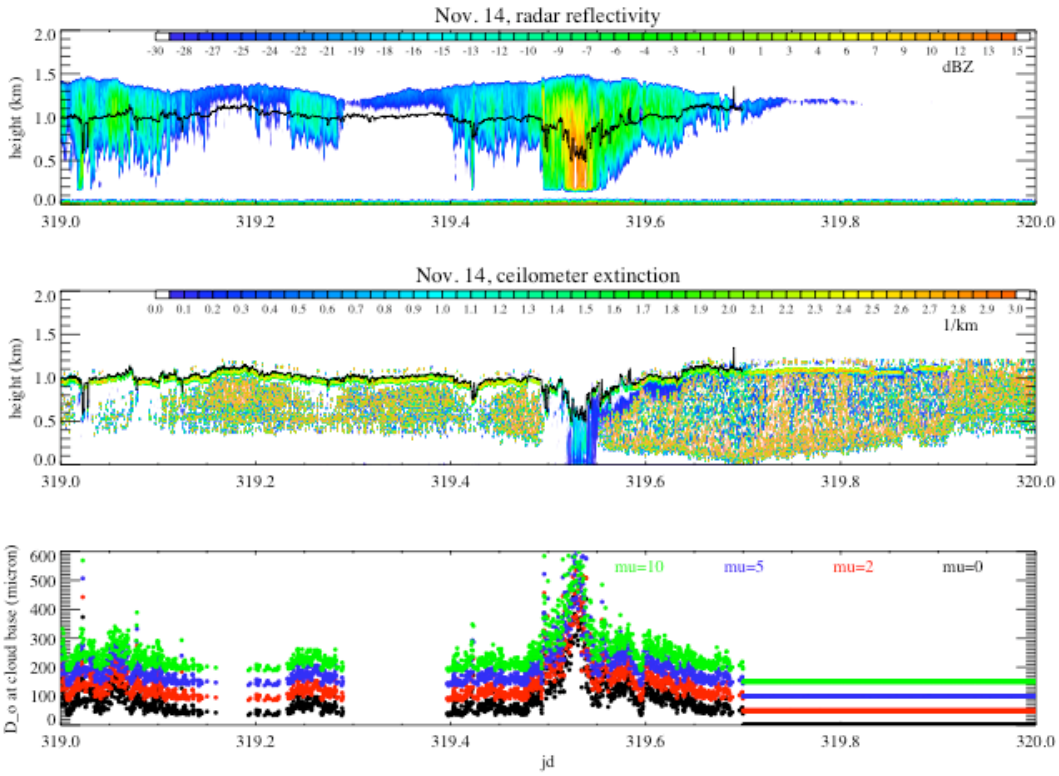
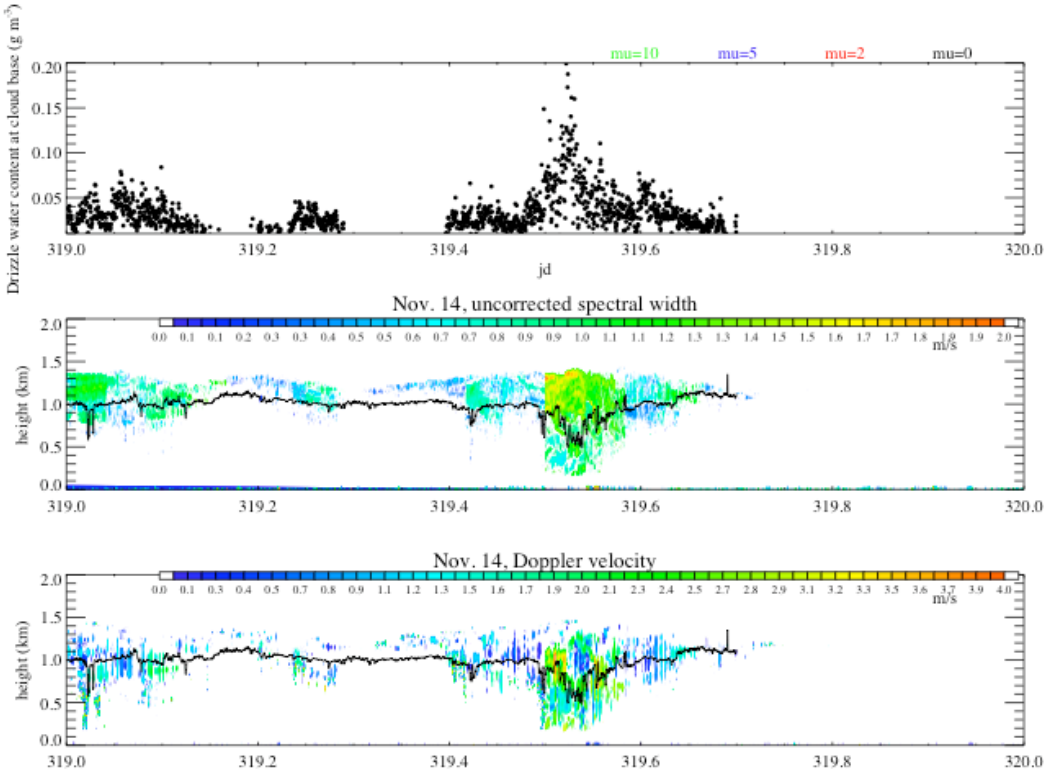


Fig. 1: The apparent lidar ratio (= multiple scattering factor*0.5/B, where B is the path-integrated backscatter that totally attenuates the lidar signal).

An example of the ceilometer-radar data and the drizzle retrieval is shown for one day in Fig. 2, with the drizzle diameter at cloud base shown for different assumptions of the drop size distribution (each is offset by 50 micron as well, to ease the depiction), with the corresponding drizzle amount for an exponential distribution (mu=0) also shown (fourth panel). The last 2 panels show the radar spectral width and Doppler velocity, which still need some incorporation of the motion compensation. In addition the spectral width information needs to be treated more rigorously to separate turbulence contributions from dropsize distribution contributions. We intend to use the VOCALS data to help us improve our data treatment of the other cruises, for which a radar with motion compensation was not available.





The results to date are encouraging. In a separate project we are developing liquid water path retrievals for the VOCALS cruise and we expect to combine these with the drizzle fluxes to develop a drizzle flux (or evaporation) - LWP parameterization. Given the current strong interest in VOCALS, the analysis of VOCALS drizzle data will be a priority for the upcoming year.